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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,688	01/14/2002	Britta Sundermann	MERCK 2353	9026

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EXAMINER	
LOCKARD, JON MCCLELLAND	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,688	SUNDERMANN ET AL.	
	Examiner	Art Unit	
	Jon M Lockard	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *16 April 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, Claims 1-9 and 11 in the reply filed on 07 July 2004 is acknowledged. The traversal is on the ground(s) that since all the claims involve related subject matter, a search would therefore comprise overlapping subject matter and would therefore not be an undue burden on the examiner to carry out the search. This is not found persuasive because Group I is drawn to nucleic acid and polypeptides and Group II is drawn to antibodies. Each group represents an independent and distinct invention. Group I is a nucleic acid and protein art invention and Group II is an antibody art invention, which are structurally and functionally different compounds and would require non-overlapping searches. Lack of unity is shown because these compounds lack a common utility which is based upon a common structural feature which has been identified as the basis for that common utility. Claim 10 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. The requirement is still deemed proper and is therefore made FINAL.

Status of Application, Amendments, and/or Claims

2. The preliminary amendment of 14 January 2002 has been received and entered in full. Claim 10 has been withdrawn from consideration as discussed above, and claims 1-9 and 11 are under examination.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

4. It is noted that this application appears to claim subject matter disclosed in prior Application No. PCT/EP00/06211 and EP99113428.9, filed 04 July 2000 and 12 July 1999, respectively. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional US applications. Also, the current status of all nonprovisional parent applications referenced should be included.

5. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C.

119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Information Disclosure Statement

6. The information disclosure statement filed 16 April 2004 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because Reference #5 is not in the English language. This reference has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Specification

7. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (pp26, line 34). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Objections

8. Claim 1 is objected to because of the following informalities: There is a space missing "thesequence" should read "the sequence" (line 1 of part (a)); the word "and" should be removed from the end of part (c). See MPEP §2173.05(h) for proper Markush language.

9. Although not indefinite, the Examiner requests that the phrase "which is the polypeptide sequence of SEQ ID NO:2" in claim 3 be replaced with the following: "consisting of the polypeptide sequence of SEQ ID NO:2".

10. Remove "and" from the end of part (b) and (c) of claim 7.

11. Remove "and" from the end of part (b) and (c) of claim 8; incorrect word "and" at the beginning of part (c) of claim 8 should be "an".

12. Although not indefinite, the Examiner requests that the phrase "and any one polypeptide of claim 1" of claim 9 be replaced with the following: "and any one of the polypeptides of claim 1". Appropriate correction is required.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make

and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claims 1, 4, 6-9, and 11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for SEQ ID NO:1 and 2, does not reasonably provide enablement for polynucleotides having at least 95% sequence identity to SEQ ID NO:1, polynucleotides that encode a polypeptide having at least 95% sequence identity to SEQ ID NO:2, polynucleotides that will hybridize to SEQ ID NO:1 under stringent conditions, polynucleotides that are variants of SEQ ID NO:1, polypeptides having at least 95% sequence identity to SEQ ID NO:2, fragments or variants of SEQ ID NO:2. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

15. The specification's disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without undue experimentation. The factors relevant to this discussion include the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of specific guidance in the specification, and the breadth of the claims.

16. There is no functional limitation in the claims. The claims encompass an unreasonable number of inoperable polynucleotides and polypeptides, which the skilled artisan would not know how to use.

17. There are no working examples of polynucleotides or polypeptides that are less than 100% identical to SEQ ID NO:1 or 2. The skilled artisan would not know how to use non-identical polynucleotides and polypeptides on the basis of teachings in the prior art or

specification unless they possessed a specific function disclosed in the instant specification, in which there is none.

18. The specification teaches that SEQ ID NO:2 encodes a type II transmembrane serine protease (SEQ ID NO:1). However, the specification does not provide guidance for using polynucleotides or polypeptides that are not 100% identical to SEQ ID NO: 1 and 2 which do not have any specific, known function.

19. The state of the art is such that the relationship between the sequence of a protein and its activity is not well understood and unpredictable, and that certain positions in the sequence are critical to the protein's structure/function relationship and can only tolerate only relatively conservative substitutions or no substitutions (See Wells, 1990, Biochemistry 29:8509-8517; Ngo et al., The Protein Folding Problem and Tertiary Structure Prediction, 1994, pp. 492-495). Furthermore, it has been shown that the TMPRSS3 gene, a closely related type II transmembrane serine protease in the same subfamily as SEQ ID NO: 1, is very sensitive to mutations in regions encoding the stem region and the serine protease domain (Reviewed in Szabo et al. Thrombosis and Haemostasis 90:185-193, 2003). Therefore, it would require undue experimentation to determine a commensurate number of operative embodiments.

20. Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claims, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working examples directed to the same, the complex nature of the invention, the state of the prior art which establishes the unpredictability of the effects of substitutions/deletions on protein structure and function, and the breadth of the claims which fail to recite any structural or

functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

21. It was found in Ex parte Maizel (27 USPQ2d 1662 at 1665) that:
Appellants have not chosen to claim the DNA by what it is but, rather, by what it does, i.e., encoding either a protein exhibiting certain characteristics, or a biologically functional equivalent thereof. Appellants' claims might be analogized to a single means claim of the type disparaged by the Court of Customs and Patent Appeals in In re Hyatt, 708F.2d 712, 218 USPQ 195 (Fed. Cir. 1983). The problem with the phrase "biologically functional equivalent thereof" is that it covers any conceivable means, i.e., cell or DNA, which achieves the stated biological result while the specification discloses, at most, only a specific DNA segment known to the inventor. Clearly the disclosure is not commensurate in scope with the claims."

22. In this case, the claims encompass an unreasonable number of polynucleotides and polypeptides with no functional limitation associated with them.

23. Claims 1, 4, 6-9, and 11 are also rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was files, had possession of the claimed invention.

24. The specification discloses a polynucleotide set forth as SEQ ID NO:2 that encodes the protein of SEQ ID NO:1. However, the claims also recite polynucleotides having at least 95% sequence identity to SEQ ID NO:1, polynucleotides that encode a polypeptide having at least 95% sequence identity to SEQ ID NO:2, polynucleotides that will hybridize to SEQ ID NO:1 under stringent conditions, polynucleotides that are fragments or variants of SEQ ID NO:1, polypeptides having at least 95% sequence identity to SEQ ID NO:2, fragments or variants of SEQ ID NO:2, and producing compounds that stimulate or inhibit the function or level of the aforementioned polypeptides. The claims do not require that the nucleic acids nor the proteins

that they encode possess any particular biological activity, nor any particular conserved structure, or other disclosed distinguishing feature. Thus, the claims are drawn to a genus of nucleic acid and polypeptide molecules as well as a broad genus of undisclosed compounds that will stimulate or inhibit the function or level of the aforementioned polypeptides.

25. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, and any combination thereof. In this case, the only factor present in claim 4 is a mere chemical property of the DNA in the form of a recitation of hybridizes to the polynucleotide set forth as SEQ ID NO:2 under unspecified conditions (see rejection under 35 U.S.C. 112¶2 below). The specification does not identify any particular structure/function correlation or biological activity. The distinguishing characteristics of the claimed genus are not described. The only adequately described species are the nucleic acid sequence represented by SEQ ID NO:2 and the polypeptide set forth as SEQ ID NO:1. Accordingly, the specification does not provide adequate written description of the claimed genus.

26. With regards to methods of producing compounds that will stimulate or inhibit the function or level of the aforementioned polypeptides, the only factor present in claim 11 is a mere desired functional property of the compounds in the form of a recitation of "stimulates or inhibits the function or level of the polypeptide of claim 1". The specification has not disclosed a single structure, any physical and/or chemical properties of the compounds, or methods of

making the claimed product. Accordingly, the specification does not provide adequate written description of the claimed genus or even a single species.

27. *Vas-Cath Inc. v. Mahurkar*, 19USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed*." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

28. With the exception of the sequences referred to above, the skilled artisan cannot envision the detailed chemical structure of the encompassed polypeptides and nucleic acid molecules, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The nucleic acid itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

29. One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

30. Therefore, only the polypeptide of SEQ ID NO:1 and the polynucleotide of SEQ ID NO:2, but not the full breadth of the claims meet the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written

description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

31. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

32. Claims 1-9 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

33. Claims 1-10, and 11 are indefinite as the term "variant" in claims 1, 4, 7, and 8 is a relative term which renders the claims indefinite. The discussion of such at page 6 of the Specification is noted but vague, fails to breathe life and meaning into the term, is exemplary rather than limiting, and thus is insufficient to render the claims definite.

34. Claims 4 and 5 are indefinite because the term "having" in part d of claim 4 has been interpreted as comprising, thus rendering parts c and d of the claim as being duplicative.

35. Claims 4 and 5 are indefinite because claim 4 recites the limitation "a fragment thereof" in line 3 of part e of claim 4. There is insufficient antecedent basis for this limitation in the claim and it is unclear if the fragment refers to a fragment of the probe or a fragment of the polynucleotide obtained by the probe.

36. Claims 4 and 5 are indefinite because the metes and bounds of the term "complementary" used in claim 4 is not clear from the prior art or the Specification. It is not clear if a full-length or partial complement is intended.

37. Claims 4 and 5 are indefinite as there is no limiting definition of stringent hybridization conditions in the Specification, and the metes and bounds of that which will hybridize are dependent upon the conditions under which the hybridization is performed. The discussion of such at page 10 of the Specification is noted but vague, fails to breathe life and meaning into the term, is exemplary rather than limiting, and thus is insufficient to render the claims definite.

38. Claims 4 and 5 are further rejected as being indefinite because it is unclear what the phrase "and polynucleotides that are variants and fragments of the above mentioned polynucleotides ..." in the last paragraph of the claim refers to. Since it is unclear if it should be a new section of the claim, i.e, part (f) and thus refer to any of the polynucleotides set forth in parts (a)-(f), or if the phrase refers only to the polynucleotides in part (f), the metes and bounds of the claims cannot be determined.

39. Claims 6-8 are rejected as being indefinite because there is no antecedent basis for "said expression vector" in claim 6, line 2.

40. Claims 7 and 8 are rejected as being indefinite because of the phrase "expressing the polypeptide of an isolated polypeptide" in claim 7. The phrase "expressing the polypeptide of an isolated polypeptide " is not defined by the claim, and one of ordinary skill in the art would not know how to express a polypeptide of a polypeptide.

41. Claims 7 and 8 are further rejected because it is unclear of the meaning of the term "membrane thereof" in line 2 of claim 7. Since it is not clear if it refers to a membrane of a host cell or a membrane of any cell expressing the polypeptide, the metes and bounds of the claims cannot be determined.

42. Claim 9 is rejected as being indefinite because there is no antecedent basis for the term "the" immunoglobulin Fc-region in line 1 of the claim. Since there are several immunoglobulins with Fc-regions (IgG and IgA, e.g.), it is unclear what "the" immunoglobulin Fc-region the claim is referring.

43. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. Part (a) of claim 11, measuring or detecting the binding of a candidate compound to the polypeptide, does not set forth any steps involved in the method/process, therefore it is unclear what method/process is encompassed by the claim. Furthermore, the same holds true for parts (b), (c), (d), (e), and (f) of the claim.

44. Claim 11 is further indefinite because part (f) of the claim does not clearly relate back to the preamble.

Claim Rejections - 35 USC § 102

45. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

46. Claims 1, 4, 6-8, and 11 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Bandman et al. (US Pat. No. 6,203,979; priority date 16 January 1998). Bandman et al. teach a protein which is 99.8% identical to SEQ ID NO:2 of the present invention that only differs by a single conservative substitution at position 196 (See SEQ ID NO:6). Bandman et al. also teach a 1504 bp polynucleotide that is 99.9% identical to SEQ ID NO:1 (See SEQ ID NO:18). Bandman et al. also teach an expression vector comprising a polynucleotide that encodes a protein that is 99.8% identical to SEQ ID NO:2, host cells comprising the expression vector, as well as methods of producing and recovering the polypeptide that is 99.8% identical to SEQ ID NO:2 (See column 21, line 41 – column 25, line 52). Lastly, Bandman et al. teach methods for screening compounds that bind to or inhibit the activity of a polypeptide that is 99.8% identical to SEQ ID NO:2 using (1) methods of detecting the binding of a candidate compound to a fusion protein that can be recognized by an antibody, (2) high throughput screening, and (3) competitive drug screening assays utilizing neutralizing antibodies (See column 20, lines 57-63 and column 38, lines 11-27).

47. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Gress et al. (Genes, Chromosomes & Cancer 19(2):97-103, 1997, GenBank Acc. NO. U54603). Gress et al. teach a cDNA that 100% identical to SEQ ID NO:1 from position 1162-1281 (See attached sequence alignment).

Claim Rejections - 35 USC § 103

48. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

49. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bandman et al. as applied to claims 1, 4, 6-8, and 11 above, and further in view of Capon et al. (U.S. Patent Number 5,116,964). Bandman et al. teach a protein that is 99.8% identical to SEQ ID NO :2. However, Bandman et al. does not disclose the protein fused to an immunoglobulin Fc region.

50. Capon et al. teaches fusion proteins comprising immunoglobulin polypeptides fused to "ligand binding partners", which are defined as including hormones and growth factors (see column 2, lines 14-19). At column 4, lines 38-43, Capon states that the immunoglobulin (Ig) fusions of the invention "serve to prolong the in vivo plasma half-life of the ligand binding partner...", "facilitate its purification by protein A" and "combine the adhesive and targeting characteristics of a ligand binding partner with immunoglobulin effector functions such as complement binding, cell receptor binding and the like."

51. Also taught are recombinant materials for making such a fusion protein, vectors and host cells; see columns 15-16. Preferred embodiments include sequences including the hinge regions of IgG-1, -2, -3 or -4, IgA, IgE, IgD and IgM, see column 14, lines 40-45 (the first domain of the constant region can be omitted). The preferred species of Ig was human, see claims 8-9. Capon states that the DNA sequences for the Ig chains were well known in the art at the time the invention was made, see column 15 beginning at line 40.

52. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the teachings of Bandman et al. and make a protein fused to an immunoglobulin

Fc region as taught by Capon et al. in view of Capon et al.'s suggestion that it would be desirable to do so, as cited above.

53. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gress et al. (Genes, Chromosomes & Cancer 19(2):97-103, 1997, GenBank Acc. NO. U54603) as applied to claim 1 above, and further in view of Sibson et al. (WO 94/01548). Gress et al. teach a cDNA that 100% identical to SEQ ID NO:1 from position 1162-1281 (See 102 rejection *supra*). Gress et al. does not however disclose an isolated polypeptide sequence encoded by SEQ ID NO:2 or a fragment thereof.

54. Sibson et al. (WO 94/01548) disclose that it is generally useful to place a desired cDNA sequence into an expression vector, host cell, and express the encoded protein, as well as to combine protein with a carrier to make antibodies to proteins encoded by such cDNA's. See pages 8-13.

55. It would have been obvious to the person of ordinary skill in the art at the time the invention was made to use the cDNA disclosed by Gress et al. (GenBank Acc. NO. U54603) to express and then isolate the encoded polypeptide, as well as make antibodies to said peptide, as taught by Sibson et al. in view of Sibson et al.'s suggestion that it would be desirable to do so, as cited above, especially in light of the fact that the cDNA was differentially expressed in pancreatic cancer as disclosed by Gress et al.

Summary

56. Claims 1-9 and 11 are hereby rejected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jon M. Lockard, Ph.D.** whose telephone number is **(571) 272-2717**. The examiner can normally be reached on Monday through Friday, 8:00 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Brenda Brumback, Ph.D.** can be reached on **(571) 272-0961**.

The fax number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see **http://pair-direct.uspto.gov**. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

JML
August 17, 2004

LORRAINE SPECTOR
PRIMARY EXAMINER